

Form PTO 1449 (Rev. 2-32)		U.S. Department of Commerce Patent and Trademark Office			Atty. Docket No. SNX-0036		Serial No. 10/737,206	
Information Disclosure Statement by Applicant					Applicant: Xiaoling Fang et al.			
(Use several sheets if necessary)					Filed: December 15, 2003		Group: 2644	
U.S. Patent Documents								
Init.		Document No.	Date	Name	Class	Subclass	Filing Date	
PRI	A	3,763,333	10/02/1973	Lichowsky				
	B	4,494,074	01/15/1985	Bose			Duplicate	
PRI	C	4,845,757	07/04/1989	Wagner				
PRI	D	5,259,033	11/02/1993	Goodings et al.				
	E	5,848,169	12/08/1998	Clark, Jr. et al.			Duplicate	
	F	6,072,884	06/06/2000	Kates			Duplicate	
	G	6,219,427	04/17/2001	Kates et al.			Duplicate	
Foreign Documents								
Translation								
Init.		Document No.	Date	Country	Class	Subclass	Yes	No
PRI	H	WO 93/20668	10/14/1993	PCT				
PRI	I	WO 94/09604	04/28/1994	PCT				
Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)								
Examiner								
Date Considered 11-18-04								
Examiner: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with the next communication to applicant.								

Form PTO 1449 (Rev. 2-32)				U.S. Department of Commerce Patent and Trademark Office		Atty. Docket No. SNX-036		Serial No. not yet assigned	
Information Disclosure Statement by Applicant						Applicant: Fang et al.			
(Use several sheets if necessary)						Filed: Herewith Group:			
U.S. Patent Documents									
Init.		Document No.	Date	Name	Class	Subclass	Filing Date		
<i>FL</i>	A	3,578,913	05/18/71	Ufkes	179	1	05/13/68		
	B	3,685,009	08/15/72	Gleming, Jr.	340	16R	06/19/70		
	C	3,928,733	12/23/75	Hueber	179	107R	11/20/74		
	D	4,025,721	05/24/77	Graupe et al.	179	1P	05/04/76		
	E	4,061,875	12/06/77	Freifeld et al.	179	1P	02/22/77		
	F	4,135,590	01/23/79	Gaulder	179	1P	07/26/76		
	G	4,185,168	01/22/80	Graupe et al.	179	1P	01/04/78		
	H	4,187,472	02/05/80	Yum	330	260	01/30/78		
	I	4,188,667	02/12/80	Graupe et al.	364	724	11/18/77		
	J	4,216,430	08/05/80	Amazawa et al.	455	219	02/21/79		
	K	4,238,746	12/09/80	McCool et al.	333	166	03/20/78		
	L	4,243,935	01/06/81	McCool et al.	324	77R	05/18/79		
	M	4,326,172	04/20/82	Schmidt	330	294	06/26/80		
	N	4,355,368	10/19/82	Zeidler et al.	364	728	10/06/80		
	O	4,368,459	01/11/83	Sapora	340	407	12/16/80		
	P	4,548,082	10/22/85	Engelbretson et al.	73	585	08/28/84		
	Q	4,589,137	05/13/86	Miller	381	94	01/03/85		
	R	4,602,337	07/22/86	Cox	364	480	02/24/83		
	S	4,628,529	12/09/86	Borth et al.	381	94	07/01/85		
	T	4,658,426	04/14/87	Chabries et al.	381	94	10/10/85		
	U	4,718,099	01/05/88	Horvet	381	68.4	01/29/86		
	V	4,723,294	02/02/88	Taguchi	381	94	12/08/86		
	W	4,759,071	07/19/88	Heide	381	68.4	08/14/86		
	X	4,783,818	11/08/88	Graupe et al.	381	71	10/17/85		
	Y	4,802,227	01/31/89	Elko et al.	381	92	04/03/87		
	Z	4,912,767	03/27/90	Chang	381	47	03/14/88		
	AA	4,939,685	07/03/90	Feintuch	364	724.19	12/27/89		
	AB	4,956,867	09/11/90	Zurek et al.	381	94.1	04/20/89		
	AC	5,016,280	05/14/91	Engelbretson et al.	381	68	03/23/88		
	AD	5,027,306	06/25/91	Dattorro et al.	364	724.10	05/12/89		
Examiner <i>R. Kaban</i>					Date Considered <i>11/18/04</i>				
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U.S. Patent Documents							
Init.		Document No.	Date	Name	Class	Subclass	Filing Date
<i>92/11</i>	AE	5,091,952	02/25/92	Williamson et al.	381	68.2	11/10/88
	AF	5,097,510	03/17/92	Graupe	381	47	11/07/89
	AG	5,111,419	05/05/92	Morley Jr. et al.	364	724.19	04/11/88
	AH	5,165,017	11/17/92	Eddington et al.	381	68.4	02/23/90
	AI	5,225,836	07/06/93	Morley Jr. et al.	341	150	11/15/91
	AJ	5,233,665	08/93	Vaughn et al.	381	93	12/17/91
	AK	5,263,019	11/93	Chu	381	83	02/19/92
	AL	5,291,525	03/01/94	Funderburk et al.	375	98	04/06/92
	AM	5,305,307	04/94	Chu	381	83	02/21/91
	AN	5,355,418	10/11/94	Kelsey et al.	381	72	02/22/94
	AO	5,357,251	10/18/94	Morley, Jr. et al.	341	172	04/30/93
	AP	5,396,560	03/07/95	Arcos et al.	381	68	03/31/93
	AQ	5,402,496	03/95	Soli et al.	381	93	07/13/92
	AR	5,412,735	05/02/95	Engebretson et al.	381	94	02/27/92
	AS	5,473,684	12/05/95	Bartlett et al.	379	387	04/21/94
	AT	5,475,759	12/12/95	Engebretson	381	68.2	05/10/93
	AU	5,500,902	03/19/96	Stockham, Jr. et al.	381	68.4	07/08/94
	AV	5,511,128	04/23/96	Lindemann	381	92	01/21/94
	AW	5,651,071	07/22/97	Lindemann et al.	381	68.2	09/17/93
	AX	5,677,987	10/97	Seki et al.	395	2.35	07/18/94
	AY	5,680,467	10/97	Hansen	381	93	10/17/96
	AZ	5,689,572	11/97	Ohki et al.	381	94.1	12/08/94
	BA	5,710,820	01/20/98	Martin et al.	381	68.4	03/22/95
	BB	5,794,187	08/11/98	Franklin et al.	704	225	07/16/96
	BC	5,825,898	10/20/98	Marash	380	92	06/27/96
	BD	5,838,801	11/17/98	Ishige et al.	381	68.4	12/09/97
	BE	5,848,171	12/08/98	Stockham, Jr. et al.	381	321	01/16/96
	BF	5,867,581	02/02/99	Obara	381	312	10/11/95
	BG	6,023,517	02/08/00	Ishige	381	315	10/21/97
	BH	6,044,162	03/28/00	Mead et al.	381	312	12/20/96
	BI	6,072,885	06/06/00	Stockham, Jr. et al.	381	321	08/22/96
	BJ	6,163,287	12/19/00	Huang	341	143	04/05/99
Examiner <i>Deba</i>					Date Considered <i>11-18-04</i>		
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Foreign Documents							
							Translation
Init.		Document No.	Date	Country	Class	Subclass	Yes No
<i>FFH</i>	BK	0 064 042	01/02/86	Europe	H04R 25	00	X
	BL	0 823 829	11/2/98	Europe	H04R 25	00	X
	BM	0 930 801	12/30/98	Europe			
	BN	96/35314	11/07/96	PCT	H04R 25	00	X
	BO	97/50186	12/31/97	PCT			
	BP	98/28943	7/2/98	PCT	H04R 25	00	X
	BQ	98/47227	10/22/98	PCT			
	BR	98/47314	10/22/98	PCT	H04R 25	00	X
	BS	99/26453	05/27/99	PCT	H04R25	00	X
Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)							
<i>FFH</i>	BT	Berouti, et al., "Enhancement of Speech Corrupted by Acoustic Noise", April 1979, Proceedings of the IEEE Conference on Acoustics, Speech and Signal Processing, pp. 208-211.					
	BU	Boll, S., "Suppression of Acoustic Noise in Speech Using Spectral Subtraction," April 1979, IEEE Trans. On ASSP, Vol. ASSP-27, pp. 113-120.					
	BV	Brey, Robert H. et al., "Improvement in Speech Intelligibility in Noise Employing an Adaptive Filter with Normal and Hearing-Impaired Subjects," Journal of Rehabilitation Research and Development, Vol. 24, No. 4, pp. 75-86.					
	BW	Bustamante et al., "Measurement and Adaptive Suppression of Acoustic Feedback in Hearing Aids", Nicolet Instruments, Madison, Wisconsin, pp. 2017-2020.					
	BX	Chabries, Douglas M. et al., "Application of Adaptive Digital Signal Processing to Speech Enhancement for the Hearing Impaired," Journal of Rehabilitation Research and Development, Vol. 24, No. 4, pp. 65-74.					
	BY	Chabries, et al., "Application of a Human Auditory Model to Loudness Perception and Hearing Compensation," 1995, IEEE, pp. 3527-3530.					
	BZ	Chabries, et al., "Noise Reduction by Amplitude Warping in the Spectral Domain in a Model-Based Algorithm", June 11, 1997, Etymotic Update, No. 15.					
	CA	Crozier, P. M. et al., "Speech Enhancement Employing Spectral Subtraction and Linear Predictive Analysis," 1993, Electronic Letters, 29(12): 1094-1095.					
	CB	"Delta-Sigma Overview", Fall 1996, ECE 627, pp. 1-29.					
	CC	Esterman, Pius, "Feedback Cancellation in Hearing Aids: Results from Using Frequency-Domain Adaptive Filters", Institute for Signal and Information Processing, pp. 257-260.					
	CD	Etter, et al., "Noise Reduction by Noise-Adaptive Spectral Magnitude Expansion", May 1994, J. Audio Eng. Soc., Vol. 42, No. 5, pp. 341-348.					
	CE	George, E. Bryan, "Single-Sensor Speech Enhancement Using a Soft-Decision/Variable Attenuation Algorithm", 1995, IEEE, pp. 816-819.					
	CF	Gustafsson, et al., "A Novel Psychoacoustically Motivated Audio Enhancement Algorithm Preserving Background Noise Characteristics", 1998, IEEE, pp. 397-400.					
Examiner <i>Khanna</i>					Date Considered <i>11-18-04</i>		
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Information Disclosure Statement by Applicant			Applicant: Fang et al.	
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Other Documents (Including Author, Title, Date, Pertinent Pages, etc.)				
CG	Kaelin, et al., "A digital Frequency-Domain Implementation of a Very High Gain Hearing Aid with Compensation for Recruitment of Loudness and Acoustic Echo Cancellation", 1998, Elsevier Science B.V., Signal Processing 64, pp. 71-85.			
CH	Karema, et al., "An Oversampled Sigma-Delta A/D Converter Circuit Using Two-Stage Fourth Order Modulator", 1990, IEEE, pp. 3279-3282.			
CI	Kates, James M., "Feedback Cancellation in Hearing Aids: Results from a Computer Simulation", 1991, IEEE, Transactions on Signal Processing, Vol. 39, No. 3, pp. 553-562.			
CJ	Killion, Mead, "The SIN Report: Circuits Haven't Solved the Hearing-in-Noise Problem," October 1997, The Hearing Journal, Vol. 50, No. 20, pp. 28-34.			
CK	Kuo, et al., "Integrated Frequency-Domain Digital Hearing Aid with the Lapped Transform", Sept. 10, 1992, Northern Illinois University, Department of Electrical Engineering, 2 pages.			
CL	Lim, et al., "Enhancement and Bandwidth Compression of Noisy Speech", 1979 IEEE, Vol. 67, No. 12, pp. 1586-1604.			
CM	Maxwell, et al., "Reducing Acoustic Feedback in Hearing Aids", 1995, IEEE, Transactions on Speech and Audio Processing, Vol. 3, No. 4, pp. 304-313.			
CN	Norsworthy, Steven R., "Delta-Sigma Data Converters", IEEE Circuits & Systems Society, pp. 321-324.			
CO	Quatieri, et al., "Noise Reduction Based on Spectral Change", MIT Lincoln Laboratory, Lexington, MA, 4 pp.			
CP	Riley, et al., "High Decimation Digital Filters, 1991, IEEE, pp. 1613-1615.			
CQ	Sedra, A. S. et al., "Microelectronic Circuits", 1990, Holt Rinehart and Winston, pp. 60-67, 230-241, 900-902.			
CR	Sheikhzadeh, H., et al., "Comparative Performance of Spectral Subtraction and HMM-Based Speech Enhancement Strategies with Application to Hearing Aid Design," 1994, Proc. IEEE, ICASSP, pp. I-13 to I-17.			
CS	Siqueira et al., "Subband Adaptive Filtering Applied to Acoustic Feedback Reduction in Hearing Aids", 1997, IEEE, pp. 788-792.			
CT	Stockham, Thomas G., Jr., "The Application of Generalized Linearity to Automatic Gain Control", June 1968, IEEE, Transactions on Audio and Electroacoustics, Vol. AU-16, NO. 2, pp. 267-270.			
CU	Virag, Nathalie, "Speech Enhancement Based on Masking Properties of the Auditory System", 1995, IEEE, pp. 796-799.			
CV	Wyrsh et al., "Adaptive Feedback Cancelling in Subbands for Hearing Aids", 4 pages.			
CW	Yost, William A., "Fundamentals of Hearing, An Introduction," 1994, Academic Press, Third Edition, p. 307.			
Examiner <i>E. Rabin</i>		Date Considered <i>11-18-07</i>		
Examiner: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with the next communication to applicant.				

Form PTO 1449 (Rev. 2-32)				U.S. Department of Commerce Patent and Trademark Office		Atty. Docket No. SNX-036		Serial No. unassigned	
Information Disclosure Statement by Applicant						Applicant: Xiaoling Fang, et al.			
(Use several sheets if necessary)						Filed: herewith		Group: unassigned	
U.S. Patent Documents									
Init.		Document No.	Date	Name	Class	Subclass	Filing Date		
<i>PL</i>	A	4,122,303	10/24/78	Chaplin et al.					
	B	4,249,128	2/3/81	Karbowski					
	C	4,494,074	1/15/85	Bose					
	D	4,589,133	5/13/86	Swinbanks					
	E	4,630,305	12/16/86	Borth et al.					
	F	4,654,871	3/31/87	Chaplin et al.					
	G	4,878,188	10/31/89	Ziegler, Jr.					
	H	4,953,217	8/28/90	Twiney et al.					
	I	4,985,925	1/15/91	Langberg et al.					
	J	5,105,377	4/14/92	Ziegler, Jr.					
	K	5,177,755	1/5/93	Johnson					
	L	5,251,263	10/5/93	Andrea et al.					
	M	5,452,361	9/19/95	Jones					
	N	5,539,831	7/23/96	Harley					
	O	5,544,250	8/6/96	Urbanski					
	P	5,600,729	2/4/97	Darlington et al.					
	Q	5,848,169	12/8/98	Clark, Jr. et al.					
	R	5,937,070	8/10/99	Todter et al.					
	S	6,035,048	3/7/00	Diethorn					
	T	6,072,884	6/6/00	Kates					
	U	6,118,878	9/12/00	Jones					
	V	6,173,063	1/9/01	Melanson					
	W	6,219,427	4/17/01	Kates et al.					
	X	6,278,786	8/21/01	McIntosh					
	Y	6,396,930	5/28/02	Vaudrey et al.					
Foreign Documents									
Init.		Document No.	Date	Country	Class	Subclass	Translation		
<i>PL</i>	Z	WO 98/43567	10/8/98	International			Yes	No	
<i>PL</i>	AA	WO 99/45741	9/10/99	International					
Examiner <i>PL</i>					Date Considered <i>11-18-04</i>				
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